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TO: AIAM Technical Committee
AIAM Government Relations Committee

FROM: Gregory J. Dana
Vice President and Technical Director

RE: **GLOBAL CLIMATE CHANGE - Report on GCC STAC Conference Call and July 25, 1997 Meeting at the White House**

Enclosed is a memo summarizing the July 24, 1997 conference call of the GCC Science and Technology Assessment Committee (STAC). Also enclosed is a summary of the July 25, 1997 White House meeting on the Science of Climate Change. I would urge all of you to read this summary, as it provides a good insight on the Administration's views on this issue.

GJD:jai

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GCC Science and Technology Assessment Committee

July 24, 1997

Members of GCC-STAC

Results of the July 23 Conference Call

1) Lenny Bernstein reported that the ACSH is rewriting the draft of their report on the public health effects effects of potential climate change. A new draft has been promised by July 26 and will be circulated to STAC members if it is of sufficient quality to warrant committee review.

2) Bob Gehri contacted Bob Davis, a University of Virginia climatologist, about writing a paper for GCC use on climate change and extreme weather events. Davis has expressed interest and will provide a proposal to STAC in the next week or so.

3) In view of GCC's budget limitations, there was no support for funding the Annapolis Center Workshop on Climate Change.

4) Copies of the second draft of IPCC Technical Paper IV, Implications of Proposed CO_2 Emission Limitations, will be sent to those members of the committee who expressed willingness to provide review comments. Comments should be forwarded to Bob Gehri no later than the close of business on Monday, August 11.

5) Lenny Bernstein and Bob Gehri reported on the presentations on the science of climate change made by Mike McCracken and Rosina Bierbaum at the CSIS roundtable on climate change on Tuesday, August 22. Copies of their overheads will be faxed to participants in the conference call.

6) S. Fred Singer, Science & Environmental Policy Project, has claimed that he has scientific evidence that during recorded history, i.e., the last 3,000 years, there have been more dramatic changes in climate than any projected by the IPCC. If Singer's claim is valid, it would counter the IPCC claim that climate will change faster in the next 100 years than anytime in the last 10,000 years. Marie Takemoto will contact Singer to find out the basis for his claim.

STAC will next meet by conference call at 1:00 on Tuesday, August 12. To participate, **phone (800) 432-2190, and use participant code 454173.** Key items of business will be a report on the July 28 - Aug. 7 UNFCCC meetings, discussion of the ACSH report, evaluation of the proposal from Bob Davis, and feedback on Singer's claim. The call will be limited to two hours.

Lenny

L. S. Bernstein

GCC Science and Technology Assessment Committee

July 25, 1997

Members of GCC-STAC

White House Meeting on the
Science of Climate Change

On Thursday, July 24, I attended a 1 1/4 hour meeting at the White House attended by President Clinton, V. P. Gore, EPA Administrator Browner, and several cabinet secretaries, in which six scientists provided support for the Administration's position on the science and impacts of climate change. The meeting was attended by about 30 Administration members, 75 industry and NGO representatives, and the White House Press Corps.

The meeting was not a discussion, and its tone was best captured in V.P. Gore's opening remarks, when he said "...we are here to acknowledge the reality of climate change." There was no discussion of scientific views which did not support the Administration's position or of the cost of responding to climate change. In his closing statement, the President said that this meeting was the beginning of a consistent attempt to involve the people of the issue because the sooner we begin, the less extreme will be the measures we have to take.

The format of the meeting was as follows: the V.P., then the President, made opening statements, then each of the six scientist made a statement. One question was asked by either the President or the V.P. to each of the scientists, then the President made a closing statement. The audience was not given a chance to speak, but there was a reception afterwards, which I did not attend. Summaries of each of the statements follow, and the press notice of the meeting, which includes short biographies of the six scientists, is attached.

Vice President Gore - As indicated above, the Vice President opened the meeting by saying that "...we are here to acknowledge the reality of climate change." He said that the scientists would present information about the build-up of CO_2 in the atmosphere and what this meant in terms of droughts, floods, and changes in forests and to agriculture. He said that the Administration's approach was that science must inform policy decisions and that the world's scientific community was telling us that we are disrupting climate.

President Clinton - The President said that he saw this issue in terms of our deepest obligation to future generations, that he and his Administration had spent the last 4 ½ years trying to prepare the country for the new century and the new millennium, and that we can't do this unless we deal with the challenge of climate change. He characterized climate change as no longer a theory, but "for real," and that there was ample evidence that human activities are already disrupting climate. He said that we could see warming equal to 2/3 of the change since the last Ice Age in the next 100 years, and that this would lead to coastal flooding, infectious disease heat waves and floods.

He then turned to the political side of the issue, saying that this was the most difficult type of issue for a democracy to deal with. He said that "we (the Administration) can see the train coming, but most Americans can't hear the whistle blowing." He characterized this meeting as the beginning of a process to educate the American public on the science of climate change. He finished by saying that he was convinced that the U.S. has to be committed to realistic, binding targets at Kyoto, and then gave a brief summary of the other points in the U.S. position in the AGBM negotiations (emissions trading, involvement of the developing nations, etc.).

F. Sherwood Roland - Roland said that climate change was already underway, and rapidly went through the data on the changes in the atmosphere over the last 40 years, and the temperature and sea level rises over the last century. He said that 100 years ago most of the world's energy came from human and animal power and biomass fuels. Now it comes from "non-living fuels." He pointed out that the world is moving rapidly to greater affluence and greater dependence on fossil fuels. He cited the Montreal Protocol as a precedent on how the world could respond to a global environmental problem, and warned that there could be surprises, using the Antarctic ozone hole as an example.

Vice President Gore asked Roland how the risk of climate change compared with the risk of stratospheric ozone depletion. Roland said that both were serious, then added that while CFCs were manufactured by only 20 "science-based" companies, everyone uses fossil fuels. He said that all countries would have to be involved, but that the industrialized countries would have to take leadership.

Mario Molina - Molina gave a short description of the greenhouse effect, then showed the graph from the IPCC's First Assessment Report comparing atmospheric CO_2 levels and global temperatures for the last 160,000 years. He said that current levels of CO_2, about 360 ppm, were higher than anything experienced during that period. He then showed an extension of the chart showing CO_2 rising to 700 ppm by 2100 in the "business as usual" case.

Jane Lubchenco - Lubchenco gave the most emotional talk, starting from a discussion of the value of the "goods and services" (food, flood control, purification of air and water, etc.) provided by the ecosystem, which she said was trillions of dollars per year. She said that we needed intact ecosystems, but that climate change will disrupt ecosystems and affect the provision of these goods and services. She then took a mythical tour of the U.S. after climate change, starting with a New England in which there were no sugar maples, Louisiana with flooded salt marshes, a Midwest which had higher water demand and greater need for pesticides for agriculture, and Glacier National Park with no glaciers. She said that the rule was "the slower the rate of change the less catastrophic the impact," but that ecosystems were facing multiple stresses because of urbanization, species extinction, and climate change. She ended with a plea as a Mother to preserve the ecosystems for future generations.

Stephen Schneider - Schneider's talk was the least coherent. He talked about extreme weather

events and said that his job was to provide the "so what" of climate change. He started by quoting the study conducted several years ago by William Nordhaus, a Harvard economist. Nordhaus asked economists and scientist to estimate the damage which would be caused by climate change. Economists put the damage at 1% of GDP, while scientists put the damage at 10% of GDP. Schneider said that this was because scientists placed a higher value on the goods and services provided by the ecosystem. (It could just as well be because the scientists had a poor understand of how the economy works.) He then went on to talk about Hurricane Andrew causing $40 B in damage and asked rhetorically whether we (humans) could have had some part in that? He said that he didn't know, but pointed out that the biggest previous insured loss was $1B. He then talked about the hydrological cycle, i.e., as it gets warmer there will be more evaporation and therefore more rain, and cited the NCDC data which shows an increasing incidence of heavy rainfall events in the U.S. He again said that he couldn't say this was caused by human activity, but that it was consistent with both theory and models. Finally he quoted the IPCC statement that when non-linear systems (such as climate) are forced rapidly, they can provide large changes.

V. P. Gore then went through a list of the floods which have occurred in the last few years and asked Schneider whether this anecdotal evidence meshed with his concerns. Schneider said there were too many coincidences and that a pattern was emerging. He said that the "canary in the cage is quivering."

Bob Shope - Shope addressed health concerns. He said that a temperature rise of 6° F, the upper end of the IPCC estimate range for 2100, would cause excessive deaths due to heat. He cited the Chicago heat wave as evidence. He then went on to talk about vector borne diseases and said that these were caused by viruses, for which we had no cure, bacteria, and parasites, which were becoming drug-resistant. He focused on dengue fever, his specialty, and said that since the mosquitos which carry dengue were killed by a hard frost, Memphis, Tennessee is the current northern limit of dengue exposure in the U.S. If it gets warmer, that limit will move north. He then said that there have been small outbreaks of malaria in New Jersey, New York and Texas, and that with warming such incident would be expected to increase.

V. P. Gore asked Shope if Boston gets Atlanta's climate will it see a change in pests. Shope said yes, and Gore then said that in the South we had experienced the invasion of kudzu and it sounded to him like we were talking about "microbiological kudzu."

Henry Kendell - Kendell talked about the effect of climate change on agriculture. He said that agriculture needs a stable climate and the high temperature of 1988 cause the U.S. and Canada to lose 1/3 of their grain production, the only time in 200 years that the U.S. failed to produce sufficient grain to provide for current consumption. He said that Australia and Mexico had experienced similar events in the last few years, and that it would be "scary" if this became a pattern. He then talked about the limits on water availability and that an unstable climate was the last thing we needed in dealing with this problem. He said that the bottom tier of countries were most vulnerable, but because of environmental refugees and disruptions of trade patterns

no country would be sheltered from disruption. He characterized it as a national security problem which would be easiest to deal with if we stopped it at the outset.

The President asked whether we weren't going to have water quality and quantity problems no matter what. Kendall said that water problems were "sort of under control" but that climate change would make them worse.

John Holdren - The President introduced Holdren and asked him to explain why people were under-rating the problem, and what was the responsible way for rich countries to do what they needed to do and also involve developing countries.

Holdren gave six reason the climate change problem being under-rated:

1) Human well-being is more dependent on climate than most people think.

2) Climate disruption is further along than most people think.

3) The climate implications of population growth and increased energy usage are larger than most people think.

4) Scientific uncertainty is not grounds for complacency - disruption could be larger rather than smaller than forecast.

5) Time lines between cause, effect and remedy are longer than most people think about.

6) The fates of industrialized and developing countries are more intertwined than most people think.

Holdren said that the only way forward is global cooperation.

V. P. Gore said that some people say why not wait a little longer until we understand the problem better before taking action. Holdren responded by comparing the climate change problem to a supertanker which is hard to steer or stop. He said that the supertanker is speeding up which will make it even harder to stop unless we act now.

The President closed the meeting by saying that this was the beginning of a consistent, long term effort to involve the people of the country in the issue. He said the quicker we start, the less extreme the solutions will be.

Lenny

L. S. Bernstein

THE WHITE HOUSE

Office of the Press Secretary

FOR PLANNING PURPOSES ONLY
July 23, 1997

Contact: 202/456-7150

PRESIDENT CLINTON TO DISCUSS CLIMATE CHANGE

Washington, D.C. -- President Clinton, Vice President Gore and prominent scientists, including Nobel laureates, will hold a round table discussion to discuss climate change at the White House on Thursday, July 24, 1997. At 12:30 p.m., prior to the round table discussion, Administration officials will be available to brief interested reporters on this subject in the White House briefing room.

WHAT: President and Vice President to discuss climate change.

WHERE: East Room, The White House

WHEN: 1:50 p.m. Thursday, July 24, 1997

COVERAGE: OPEN PRESS

NOTE: The scientists listed below will be available for interviews following the event, at approximately 2:30 p.m. Media wishing to interview any of these event participants or needing White House clearance to attend this event should contact the press office at 202/456-7150.

* **Dr. F. Sherwood Rowland, University of California at Irvine.** Dr. Rowland won the Nobel Prize in Chemistry in 1995 for his pioneering research in atmospheric chemistry of the destruction of the ozone layer. He currently serves as the Foreign Secretary of the National Academy of Sciences and is a former President and Chairman of the Board of the American Association for the Advancement of Science. Rowland received his Ph.D. from the University of Chicago in 1952 and is currently the Donald Bren Research Professor of Chemistry and Earth System Science at UC Irvine.

* **Dr. Mario Molina, Massachusetts Institute of Technology.** Dr. Molina was awarded the Nobel Prize along with Dr. Rowland for their research on the thinning of the ozone layer. Molina and his colleagues demonstrated experimentally how ozone-destroying chlorine functioned in the atmosphere. He is currently the Lee and Geraldine Martin Professor of Environmental Science at MIT. Dr. Molina serves on the President's Committee of Advisors on Science and Technology and has also served as an advisor to NASA, the National Science Foundation and the National Institutes of Health.

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* **Dr. Jane Lubchenco, Oregon State University.** Dr. Lubchenco is currently the Wayne and Gladys Valley Professor of Marine Biology and a Distinguished Professor of Zoology at Oregon State University. She has received numerous teaching awards and is also an American Academy of Arts and Sciences Fellow and a Fellow to the American Association for the Advancement of Science. She received her Ph.D. from Harvard University in 1975.

* **Dr. Stephen Schneider, Stanford University.** As a postdoctoral researcher at NASA's Goddard Institute for Space Studies and later at the National Center for Atmospheric Research, Dr. Schneider's work focused on the influence of greenhouse gases and suspended particles on the earth's climate. In 1992, he was awarded a MacArthur Fellowship for his ability to integrate and interpret the results of global climate research to the public. Dr. Schneider is currently a professor in the Department of Biological Science and a Science Fellow at the Institute for International Studies at Stanford University.

* **Dr. Bob Shope, University of Texas.** Dr. Shope has devoted his career to the study of viruses carried by mosquitoes, ticks and other biting insects. Since receiving his medical degree from Cornell University in 1954, Dr. Shope has spent time in Malaysia, Brazil and other tropical sites studying insect-borne diseases. He was a Professor of Epidemiology at Yale University's School of Medicine from 1975-1995 and served as the Director of the Yale Arbovirus Research Unit for 24 years. Dr. Shope is presently a Professor in the Departments of Pathology and Microbiology and Immunology at the University of Texas Medical Branch.

* **Dr. Henry Kendall, Massachusetts Institute of Technology.** Dr. Kendall won a Nobel Prize in 1990 for his work in particle physics. Throughout his career, Dr. Kendall's work has focused on U.S. energy and defense issues including the nuclear arms race, nuclear power and renewable energy sources. Dr. Kendall is a founding member of the Union of Concerned Scientists and has been elected to the National Academy of Sciences. He is currently the J.A. Stratton Professor of Physics at the Massachusetts Institute for Technology.

* **Dr. John Holdren, Harvard University.** Dr. Holdren is an expert on energy and environmental science. He is currently chairing the Presidential Committee of Advisors on Science and Technology Study of the entire U.S. energy research and development portfolio in relation to the economic, environmental and security challenges of the next century. He is presently the Teresa and John Heinz Professor of Environmental Policy and Director of the Program on Science, Technology and Public Policy in the John F. Kennedy School of Government and Professor of Environmental Science and Public Policy in the Department of Earth and Planetary Sciences at Harvard.

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